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*A note on triangle-free graphs.* (In English)

**Aldous, David (ed.) et al., Random discrete structures. Based on a workshop held November 15-19, 1993 at IMA, University of Minnesota, Minneapolis, MN, USA. Berlin: Springer-Verlag, IMA Vol. Math. Appl. 76, 117-119 (1996). [ISBN 0-387-94623-3/hbk]**

If $G$ is a triangle-free graph with many edges, then it exhibits bipartite-like behavior. Let $B(G)$ be the maximum number of edges over all induced bipartite subgraphs of $G$; let $f(n,e)$ be the minimum of $B(G)$ where $G$ ranges over all $n$-vertex, $e$-edge triangle-free graphs, and let $g(e) = \min_n f(n,e)$. Then for some constants $c_1$ and $c_2$,

$$c_1 e^{1/3} \le g(e) \le c_2 e^{1/3} \ln^2 e;$$

these bounds also apply to $f(n,e)$ if $e < c_5 n^{3/2}$ for some fixed $c_5$. On the other hand, there exist $c_4$, $c_5$ such that if $e \ge c_5 n^{3/2}$, then

$$c_3 e^3 n^{-4} \le f(n,e) \le c_4 e^4 n^{-4} \ln^2 n.$$

These results were obtained by probabilistic and combinatorial techniques. The authors expressed a desire to eliminate the polylogarithmic factor between the bounds.

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